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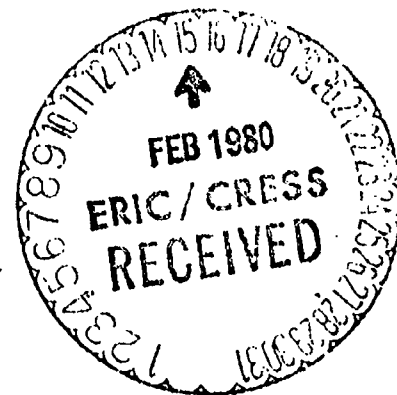
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ABSTRACT

If primary medical care is to be provided to remote rural populations in developing countries, alternative and innovative delivery systems emphasizing community participation, use of paraprofessionals, and health education programs must be considered. A recent American Public Health Association study of 100 health projects in developing countries reveals that 92% of the projects are offering some sort of health education service, indicating the serious emphasis placed on the health education component. Methods being utilized to make health education a more effective part of the primary health system include radio campaigns in Tanzania and Assam, India, effective because the use of radio can overcome geographic and literacy barriers, and audio cassette programs for both group and individual listening in Guatemala and India. A Colombian program uses cassette communication for paraprofessional continuous training and provides a simple, low cost, portable, durable, flexible, and accurate means of health education. A Guatemalan project uses cassette and record/playback systems to assist student doctors in expanding the quality and quantity of their contacts with rural people. The health education programs outlined have substantial potential but unless there is strong political commitment to the systematic use of communication and administrative record keeping, it will be difficult to implement and assess innovative health education strategies. (NEC)

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DEVELOPING HEALTH EDUCATION PROGRAMS IN RURAL AREAS

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DEVELOPING HEALTH EDUCATION PROGRAMS IN RURAL AREAS

The pattern is a familiar one to persons concerned about primary health care in community development. You can see it in Dr. Rafiq Miazad's description of the health situation in Afghanistan where about 85% of the population lives in areas without convenient access to primary medical care. The Afghan Ministry of Public Health considers adequate medical care for the entire population "a matter of the highest priority." Although a network of Basic Health Centers is being built, the great majority of Afghanistan's 20,000 or so villages are located at long distances from any Center. According to Dr. Miazad,

If primary medical care is to be provided to the scattered village population, an alternative to the present health delivery system must be considered. The number of physicians is far too few to be able to provide medical coverage over so vast an area. Even if there were enough physicians, the lack of social and educational opportunities in the village for the physician and his family would keep them away. One alternative that has been attempted in a number of countries is that of the Village Health Worker (VHW). The basic idea involves the selection and training of a villager who is then able to treat the most common medical complaints in the village (referring all the more complicated cases to the BHC physician) as well as to teach his or her fellow villagers the rudiments of hygiene, sanitation, nutrition, etc. The VHW is supervised and supported by the nearest BHC, so that he becomes a village extension of the on-going national health system.¹

The pattern -- which is evident in primary health programs from Indonesia to Tanzania, from the People's Republic of China to Colombia -- includes an emphasis on community participation, on the use of paraprofessionals, on prevention of disease and illness, and on health education.² This paper

¹Rafiq Miazad, A Proposed Village Health Worker Program for the People of Afghanistan, Ministry of Health, Kabul, Afghanistan, 1977, p. 1.

²See, for example, the case studies in Kenneth W. Newell, ed., Health by the People, World Health Organization, Geneva, 1975, and Newell's summary chapter "Health by the People," pp. 191-203.

concentrates on the health education part of the pattern, and raises two basic questions: Are we really serious about health education? And if we are: What can be done to make it a more effective part of the primary health system, particularly in those rural areas inhabited by those called the "poor majority?"

The need for health education:

There is evidence of widespread interest in health education. This seems to arise from the realization that some health problems are, in part, communication or education problems. For example, Dorozynski suggests that economic, political and education problems are key factors in malnutrition. "Sometimes," he suggests, "satisfactory results can be achieved by explaining that the piece of meat traditionally set aside for the working father should be given to the growing child, while the piece of ~~sugar~~ reserved for the child should go to the father."³ The leaders of a comprehensive rural health project in India note that although rural communities may be poor and less educated, their people are intelligent. "They want to know 'why' before they accept a programme. The explanation of health programmes through education accounts for the success of mass programmes such as immunization and the introduction of oral contraceptives."⁴

And two registered nurses working in Africa note that,

Ignorance of infant feeding is one of the main causes of malnutrition in our Black communities. The mothers believe that a malnourished child is either "bewitched" or displaying the "anger of the ancestors," and they do not realize how much they can do to improve a child's condition.⁵

³Alexander Dorozynski, Doctors and Healers, International Development Research Centre, Ottawa, 1975, p. 17.

⁴Mabelle and Rajanikant Arole, "A Comprehensive Rural Health Project in Jamkhed," in Kenneth W. Newell, ed., Health by the People, p. 87.

⁵Moreen Vincent and Louisa Kekana, "Folk Beliefs Used to Fight Malnutrition," Salubritas, Vol. 1, No. 2 (April 1977), p. 2.

Nugroho, who has considerable village-level health experience, sums up the point, commenting that "Educational activities aimed at the dissemination of lucid information about health and nutrition, the spread of disease and its consequences, the responsibility of a patient towards the general community and his own milieu, family health, and family planning are the basis of a community health programme."⁶

It certainly looks as if some people are serious about health education. And there is more evidence.

In a recent American Public Health Association (APHA) study⁷ involving 180 health projects in developing countries, a survey question listed 16 kinds of activities and then asked: "How active or interested in this area is your project?" Tied at the top of the list were "health education" and "treatment and care of the ill," with 79% of the projects reporting that they were "actively working toward definite objectives" in these areas. Close behind were "maternal and child health, 78%; nutrition, and immunization and inoculation tied at 74%; and "training of health workers," 73% (pp. 8-9). Another 16% reported "interest in, but not actively working in public health education" (p. 39).

The study also indicates that 92% of the projects are offering some sort of health education service -- apparently most often associated with maternal and child health programs in a clinic setting (pp. 21, 26).

⁶Gunawan Nugroho, "A Community Development Approach to Raising Health Standards in Central Java, Indonesia," in Kenneth W. Newell, ed., Health by the People, p. 111.

⁷The State of the Art of Delivering Low Cost Health Services in Less Developed Countries: A Summary Study of 180 Health Projects, American Public Health Association, Washington, DC, 1977, pp. 8-9).

Intentions and actions:

While these data are encouraging they only partly answer the question

"are we serious?" Note another perspective offered by the APHA study:

"Only half of the projects report having plans describing their educational goals, methodologies and resources, and even fewer (44%) can state specific project changes. Fewer than three out of ten projects have specific health education budgets.... Keeping in mind the fact that fewer than one-third of the projects report having professional health-educators on the staff, it is likely that the project staffs do not yet have the levels of expertise needed for more sophisticated health education planning (p. 39).

Instructive though these data are, the laments of two doctors working in rural health programs reveal the problem in more human terms. From Indonesia:

A hot day, right in the middle of the dry season. A row of patients, mostly mothers with naked babies sucking the empty breast of their mothers, waiting patiently under the tree in front of the clinic. The nurse calling the names of the patients almost automatically and distributing milk and wheat. The serious cases were sent through to me and I was appalled as I examined the children, desperately looking at the patients' records. I shuddered at the thought that in another six months the cycle would return again, possibly worse.⁸

And again, from the British West Indies:

I find it frustrating to remain calm in the midst of preventable death or morbidity. I am anxious for any suggestions on how to generate greater commitment among those working with me and to encourage them to participate in continuing education, which I am prepared to offer.

I am also concerned about patient compliance. I may admit the mother of the malnourished child, and under my supervision have her prepare the foods or food for the child for two consecutive days. Later on, however, through house visits we learn that our teaching is not being followed! The mothers won't give fish or meat to their children because that "causes worms." This behavior is probably due to local customs or beliefs, but how does one deal with this?⁹

⁸Gunawan Nugroho, "A Community Development Approach to Raising Health Standards in Central Java, Indonesia," in Kenneth W. Newell, ed., Health by the People, World Health Organization, Geneva, 1975, p. 94.

⁹James M. Bacon, MD to Saiubritas, Vol. 1, No. 2, April 1977.

Despite the needs and the best of intentions, there is still much that needs to be done to improve health and nutrition education.¹⁰ A list of reasons as to why intentions do not get translated into results -- or even into action -- is one place to start.

Paraprofessionals. First there's the paraprofessionals who, as the front-line workers, ^{often} bear the responsibility for health education. Frequently they simply don't have time -- or take time -- for education activities.¹¹ Second, even if they had time, many paraprofessionals don't know how to carry out educational activities.¹² Third, the paraprofessional is not provided with suitable backup support in health education. This is particularly the case when paraprofessionals are working in the field, beyond the hospital or clinic.

Health officials. Budgets are often severely strained and it may be easier for health officials to put resources into those parts of the health service where quicker, more visible payoffs are more evident than they are in education. Cost/benefit and cost/effective ratios for educational activities are terribly elusive.¹³ Finally, doctors and other key persons in the medical establishment

¹⁰ Henceforth in this paper, nutrition education will be considered as part of health education, partly for economy of space reasons and partly because, operationally, there is much overlap in the two fields.

¹¹ Because some paraprofessionals get paid through the small profits they make on medicines and/or by providing medical services, there may be little incentive to give high priority to educational activities.

¹² cf: "Such encouragement and advice, however, are secondary tasks for the para-medics, who are not prepared by their training for this function. Their preoccupation with basic health care tasks leave them little time for the educational function." Manzoor Ahmed, The Savar Project, Meeting the Rural Health Crisis in Bangladesh, International Council for Educational Development, Essex, Connecticut, 1977, p. 15.

¹³ It is only recently that the World Bank has begun to encourage -- and provide loans for -- communication and education functions designed to reach "clients" of the projects being undertaken in health, nutrition, and family planning.

often show little commitment or innovativeness toward health education. And it is the doctor who will continue to wield significant influence over the character of rural health programs, either as a physician, administrator, or policy-maker.

For the remainder of this paper, we will look briefly at some innovative health communication programs, and then describe several projects poised at the launching pad which are designed to meet some of the problems just identified.

"Non-formal" health education:

Health education in developing nations tends to be concentrated in various non-formal settings rather than in the formal school structure, although some of the methods of the school have been simply transplanted. There are important exceptions.

In Tanzania, the government launched a massive campaign ("Man is Health") to create an awareness of specific health problems, and to recommend actions which individuals and communities could do to remedy them. This was a multi-media project which leaned heavily on a combination of radio and study groups -- some 75,000 of them. The results: the campaign succeeded in involving masses of rural people in learning and action at a "bearable cost," it increased the spread of basic health knowledge and information, and the campaign stimulated action on the community and individual level. That was in 1971. A more recent nutrition campaign ("Food is Health") seems to have produced similar results.¹⁴

¹⁴"Tanzanian Campaigns Achieve Popular Participation," Development Communication Report, No. 17 (January 1977).

In Assam, India, All India Radio is using radio soap operas to reach a large illiterate and poor population with health information. Superstitions such as exorcising devils and appeasing fairies are a hindrance to health education in Assam, and these are treated in "locally appropriate" ways through radio dramas. Although Assam is one of India's less developed states, there are a quarter of a million radio sets registered there.¹⁵

A quite different method of carrying out health education in rural areas is the "advertising approach" which relies on radio to deliver messages quite similar in format to commercials. For example, using radio spot announcements in Ecuador was reported to have produced modest changes in knowledge and attitudes concerning protein-energy malnutrition, breast-feeding, potable drinking water, parasites, diarrhea, and other intestinal problems. Furthermore, the project resulted in significant increases in the use of iodized salt. A similar advertising approach in the Philippines resulted in an increase in the use of oil, fish and vegetable supplements to infant porridge (lugaw).¹⁶

Radio is often used in these rural redevelopment projects because it can overcome geographic and literacy barriers. A variation of radio as a medium is the use of audio cassettes. For example, a short pilot project was conducted in a finca (farm) in Guatemala in which cassettes provided information on health, nutrition, child care, animal husbandry, etc. to women gathered at a "pila" (a traditional laundering place) to do their washing or to gather water.

¹⁵"Soap Opera Clinic," Project Support Communications Newsletter, Vol. 2, No. 1 (1977), Information Division, UNICEF, New York, NY, pp. 8-9.

¹⁶Mark Rasmuson, Current Practice and Future Directions of Nutrition Education in Developing Countries: A Research and Policy Assessment, study prepared for the Technical Assistance Bureau, U.S. Agency for International Development, Washington, DC, 1977, p. 24.

Women learned from the tape recordings, enjoyed listening to them, and adopted practices recommended on the tapes.¹⁷

In another small project using audio cassettes for health education, hundreds of illiterate Bhils received information on health and nutrition during a two-year experimental program in India. Listeners ("tribals") included patients visiting hospitals and clinics, and those who heard programs provided by public health nurses in their homes. Both group and individual listening took place.^{17a}

Additional projects could be cited, but perhaps these are enough to make the point that rather simple communication systems show promise in meeting some important health education needs. In the next sections, we explore several practical models.

Strengthening the role of the paraprofessional in health education:

There is substantial evidence that for the foreseeable future paraprofessional personnel will be the front-line workers in primary health care. In a project designed for Colombia, we have developed a system which we believe will make more effective use of health promoters and stimulate better health education programs in rural areas. As this description unfolds, note that the system includes, (1) continuous training for the paraprofessional, (2) a way of involving rural people as participants in their own health programs, and (3) the use of simple communication technology to maximize the impact of health education efforts. Keep in mind also some of the needs in your own health education programs.

¹⁷ Susana Fernandez and Royal D. Colle, Communication at the Pila, Cycle Publication (The Ford Foundation), 1977.

^{17a} Royal D. Colle, "Case Studies in Cassette Communication," WACC Journal (World Association for Christian Communication), Vol. XXIV, No. 3 (1977), pp. 14ff.

In Colombia, there are two kinds of paraprofessionals associated with the Nation's health services. These are social work promoters and health promoters. This project was designed for one "departamento" (state) in the country, although similar arrangements are being developed in ten more of the country's 22 departamentos.¹⁸

Lower level health services people are important in the health delivery system of Colombia because the physician-to-population ratio in rural areas is approximately 1/8,000, and the Government estimates that 40% of the population -- most of the rural and urban poor -- have practically no access to health care. The 1976 national health plan introduced a three level regionalized health care system. The key person at the community level is the health worker or "promotora." At the next level is the community health post staffed by two nurse auxiliaries. The third level consists of the local hospital. A social work promoter (Ministry of Health) works in the local community, using the local hospital as her base.

Using tape recorders. In the departamento, cassette tapes and tape recorders are used by health and social work promoters.¹⁹ Specifically, they (1) play pre-recorded tapes for individuals; (2) play tapes for groups in the community; (3) lend tapes and machines to community groups for them to play as they wish; and (4) play tapes for their own consumption.

¹⁸ One project is being undertaken by the Centro de Educacion en Administracion de Salud (CEADS); a similar pattern is being considered by the National Food and Nutrition Plan (PAN). The author is associated with each through the U.N. Social Development Centre for CEADS, and through the World Bank for PAN.

¹⁹ For ease of expression, this narrative describes the system as if it were already fully in operation, although it is only now in its early organizational stage.

In the first three uses indicated above, pre-recorded tapes can be selected from a library collection located at the local hospital or the health post. In some cases, a tape program may be part of a departamento-wide or nation-wide project or campaign; in other cases, the tape may be one dealing with an issue or problem raised by an individual or group in a particular community. For example, a local health committee or community development group may wish to learn more about building latrines. The promoter can supply a tape recording for the group which can then play it when its members are interested and motivated to do so. The promoter may lead a discussion in conjunction with the group listening, or encourage a local leader to do it.

It is important to elaborate a bit more on this process since it includes an important training component. Experience in other projects demonstrates quite clearly that paraprofessionals themselves learn from tapes when they are playing the tapes for others. This is an indirect form of in-service training. But there is more. A tape with a program designed for group listening may include on one side a special recording with directions for leading the discussion. Points which may be included in these directions include: how to introduce the tape recording, what the main points of the recording are, what questions to raise to stimulate discussion after the program is played, additional information which might be useful in the discussion (e.g., specific information on where to get materials for building latrines), other community resources to use in the listening session, or after, and information that the discussion leader should get from the listeners. Directions and guidance of this type provide the paraprofessional with very important and realistic on-the-job training.

Another important aspect of training is the paraprofessionals' participation in the making of the tapes. Many of the tapes are produced by central or

regional agencies. But all of some and parts of others can be produced in the community, thus localizing the content. Although the patterns of participation may vary, paraprofessionals may collect comments and information from doctors, agricultural experts, nutritionists, villagers and others to include in the making of a tape for the area they serve; and the paraprofessionals may actually be on the recording, thus multiplying their reach in the community. It should be noted that having paraprofessionals' voices on the tapes will very likely (1) increase their stature in the community, (2) enhance their own self-images, and (3) motivate them to get the tapes used! Thus the health promoters' participation in these activities broadens their professional base of knowledge, their knowledge of their communities, their own morale, and most important, their competence in providing health education.

Direct training via tape recordings. Tapes designed specifically for the promoter include (1) recordings made to reinforce monthly group training sessions, (2) recordings made for supplementary training and (3) tapes designed for administrative and supervising purposes. Each of these will affect how well the promoter does the health education job.

Tapes may be given to the promoters which review the highlights of their periodic group training sessions, and add more information. These review tapes are given to them at the training session, and the promoters take them home to play in their own communities, as frequently as they wish. This provides an excellent opportunity to reinforce the in-person training session, as well as to elaborate on the material.

The second kind of recording given directly to the promoter is similar to the tape just described, but it is not necessarily related to the monthly training session. It may be given to the promoter during the training session,

or sent to the promoter via mail, bus, or a commercial products distributor (such as a cigarette or soft-drink vendor). This tape may be used to introduce a new topic in the promoter's own specialization, or a topic in another sector. For example, the tape might deal with providing the health promoter with information on home gardens -- which she might use as a resource to encourage people in her own community to grow some of their own food.

A third kind of recording (which may be distributed in the same way as the preceding tape) is designed to keep the promoter up-to-date on administrative aspects of the program. It is similar to a newsletter. It may discuss personnel benefits, pay, teaching methods, details related to supply of foods, food supplements, seeds, campaigns coming up, radio programs of interest to the promoter and/or to the community, information needed by the parent organization (and why), teaching systems, etc. A major part of this tape is its emphasis on building up the image of the promoter. The tape expresses directly and indirectly the vital role played by the promoter in rural development. This is particularly important in many programs using paraprofessionals which experience high drop-out rates.

The cassette communication system.

The cassette system is an important means for strengthening the role of the paraprofessional. Following is a review of its advantages, some of which have been described above implicitly or explicitly.

Low cost. Cost is, of course, relative. It cannot be measured properly without some consideration of effectiveness and benefits. However, at US \$20-25 for a cassette unit, the capital costs are quite modest compared to costs for other communication technologies, including people. In a similar

setting in Guatemala, a very conservative estimate of the cost to reach a farmer with 15 minutes of information was U.S. \$.02.²⁰

Simplicity. Practically anyone can learn to play a cassette in less than five minutes. Recording with a cassette machine can also be easily done by persons without professional recording or radio training.

Portability. Because cassette units are small and light weight, and can operate on battery or "mains" power, it is easy to use the cassette player where it is most convenient for a person or persons to listen.

Durability. Most of the moving parts of the cassette tape and the tape machine are enclosed, giving much protection from environmental conditions, including children. The "solid state" electronics which are responsible for its small size also make the cassette player rugged.

But cassette technology provides other important assets related directly to communication of messages. For example:

Listening. In many rural development project areas, families -- and especially women and girls -- have not had the opportunity to learn to read. And even where some have learned to read, they are still more comfortable getting information by listening (and seeing). Thus, since cassette communication is an aural system, it uses a method that is very congenial to many villagers' most important learning medium.

²⁰ Royal D. Colle, Robert G. Terzuala and Susana Fernandez de Colle, "Technical Assistance on Tape: A Communication System for Rural Development," Focus: Technical Cooperation, International Development Review, 1975/3, p. 23. After reviewing some of the costs in an audio cassette project in Ecuador, James Hoxeng notes that "The recorders have proved to be an extremely low-cost mechanism for developing and maintaining dialogue in a radio format." "Programming by the People," Educational Broadcasting International, Vol. 10, No. 1 (March 1977), p. 34.

Repetition. Because the tape can be played over and over and over, listeners can have dense or more complicated messages repeated as frequently as necessary. This is difficult to do with other methods of information delivery such as radio, television or even persons. (Status differences may inhibit rural people from asking a family planning worker or nutrition aide to repeat or explain something more.)

Scheduling. There is often little opportunity to schedule information or non-formal education programs at times most convenient to the members of the rural community. A radio program or a field worker's visit to a home may come when some of a family's other activities have higher priority -- going to market, tending a sick child, working -- but cassette communication can be patterned to community or family circumstances and schedules. (In India, we sometimes found that people in a village could not watch an agricultural or any other television program on the community TV set because there had been a death in the village, and a death meant no public activities for three days. Whatever programs were broadcast in those three days were "lost" to the villagers.)

Flexibility. A cassette system offers the possibility of stopping part way through a message -- for a rest, to do another job, to talk to someone, or to go back over a portion already heard -- and then resume the program. The system also allows the message sender the flexibility to make the message as long or as short as the message requires, rather than be governed by other constraints, such as a broadcast station schedule which may make the message conform to a particular arbitrary length of time.

Accuracy. As a message is delivered -- no matter how many times or at what part of the day or night -- it reaches the listener without distortion.

It arrives without important parts being left out or changed because of the fatigue or limited competence of the field worker.

In summary, the Colombia plan provides the opportunity to extend the primary health system including a strong health education program into even remote rural areas by enlisting both paraprofessionals, local resources, and simple communication technology.

In the next section, particular attention is given the role of rural doctors in health education, and how simple communication technology might strengthen their participation.

²¹ For a more detailed discussion of these points, see Royal D. Colle and Susana Fernandez de Colle, The Communication Factor in Health and Nutrition Programs, a teaching unit prepared for the World Health Organization, 1976. It is interesting to speculate on how the basic features of this plan might be applied to problems faced by the Afghan Ministry of Public Health. For example, one of these is providing primary health care for 2-1/2 million Afghan nomads, whose routes of migration keep them far from Basic Health Centers or hospitals for most of the year. In planning a program to provide a minimum level of preventive and curative care for the majority of the nomads, the Ministry faces such difficulties as these:

- "(1) Any nomad Health Worker (NHW) who is selected by leaders of his or her tribe and trained in a brief, practical course must also be supplied and supervised in order to deliver effective services. Supply and supervision are extremely difficult to achieve for nomad populations who are moving much of the time.
- "(2) In addition to problems of supply and supervision, it will be difficult to provide continuing education courses for NHWs and to arrange referral of patients with complicated problems."

Engineer Saddiq, R. M. Miazad, Torpekai-Miazad, Primary Health Care in Afghanistan, Alexandria, Egypt, 1978, p. 5 (mimeo).

To what extent, we wonder, might the in-service training and health education aspects of the Colombia design be adapted to the Afghan situation?

Doctors, primary health care, and health education in rural areas:

In one rural health project, the main role of the medical doctor is changing from curing to teaching.²² Of course, data on "medical densities" suggests that even having a doctor's services in a rural area may be an unusual luxury.²³ However, in developing health education programs it is important to take the role of the doctor into consideration, for inevitably the front-line workers providing curative, preventive, and health education services are controlled, guided or backed up by doctors.

Governments have tried to find ways to maneuver more physicians into rural service. Ecuador, Colombia, and Peru are among the many nations which have dealt with the shortage by introducing laws that required newly graduated physicians to serve for a while in rural practice.²⁴

Often, the practice achieves less than the hoped for results. In a widely prevailing situation, students or young medical doctors who go into obligatory rural health programs "put in their time" treating cases brought to them but

²²Cf: "The classic role of the physician as that of a healer is being redefined in BRAC. We view him first and foremost as a teacher, then a planner and lastly as directly involved in curing!" Quoted, Bangladesh Rural Advancement Committee documents by Manzoor Ahmed, BRAC, Building Human Infrastructures to Serve the Rural Poor, International Council for Educational Development, Essex, Conn., 1977, p. 29.

²³In Africa, the ratio of doctors per 10,000 persons is 1.4, Asia 3, and Latin America about 6.5 (Cf: Israel, 25; USSR, 24). Since doctors tend to settle in large cities, the situation for rural areas is even worse. Alexander Dorozynski, Doctors and Healers, International Development Research Center, Ottawa, 1975, p. 9.

²⁴Abstract of A. Drobny, "Latin America Experience Related to the Solution of Rural Health Problems in the United States," American Journal of Public Health, Vol. 63, No. 1 (January 1973), in Frances A. Delaney, ed., Low Cost Rural Health Care and Health Manpower Training, Vol. 2, International Development Research Centre, Ottawa, 1976, p. 27.

do little to build up a cumulative body of information and experience to pass on to their successors. There is little continuity from one period of service to the next. What is often transmitted from the "veteran" to the "newcomer" is a sense of dismay and frustration, and relief at leaving. While one would not want to minimize the contribution such obligatory health service has made to a community's well being, it is important to strengthen its role by developing models which will help rural doctors make contributions which extend beyond their own individual periods of obligatory service. It is here where the issues of rural doctors and health education intersect, especially since doctors are often highly credible figures in the countryside even while their physical reach is highly limited.

A "model building" project has been designed for trial in a rural health program in Guatemala.²⁵ The objective is to develop systems and guidelines to:

- (a) involve rural doctors explicitly in health education activities,
- (b) increase the amount of health education rural doctors and the related health and community development organizations can generate in their communities, and
- (c) build a cumulative body of knowledge and materials which can be used by succeeding rural doctors and associated health personnel to provide continuity in the rural health program.

The project is linked to PROSA, a rural development program in Guatemala which involves obligatory service for new medical doctors, as well as for young professional students in veterinary science, dentistry, nutrition, animal

²⁵ Collaborators with the author include Dr. Guillermo Herrera, Harvard School of Public Health and Dr. Luis Octavio Angel, INCAP.

husbandry, and social work. Multidisciplinary student teams work in the municipios of Chimaltenango District in an integrated program which includes health, economic development, community organization and education. Although some students in the program are eager to provide the foundation for preventive medicine, good nutrition, and better agronomic and animal husbandry methods, the pressure of meeting daily needs and emergencies precludes extensive efforts of this sort.

The project plan. The primary assumption that lies at the roots of the project is that rural doctors would contribute to health education programs if an economical system -- in terms of their time and effort -- could be employed. Another assumption is that doctors doing short-term rural service learn much that could help doctors who follow them, but that much of this is lost in the transition. And there is the assumption -- which might be better called a testable hypothesis -- that simple communication technology and systems for using it can substantially help the situation.

The process of developing systems and testing them out will start with orienting members of the PROSA team in the use of simple communication technology for rural non-formal education programs, and training them to use these technologies.

The principal technology will be audio cassette tape and record/playback units. Systems will be suggested to the PROSA group which they will be encouraged to try out. For example, study of the health and nutrition efforts in the service area indicate two important contexts in which the young doctors can develop programs which would carry over for the next team. The intent is for the next team to build on that, and so on. Here are the beginning systems.

Patzicia. A student doctor observes that two big health problems face the primary health program here: (1) getting people to know how to use the

health post; (2) treating for worms. Each of these has an important health education component. The situation is complicated by the fact that the Spanish speaking doctor does not know Cakchikel, the language of his client.²⁶ However there are resources which the doctor could mobilize to help meet the problem. For example, people usually spend 30-45 minutes waiting to be seen by the doctor; there are Cakchikel-speaking people assisting the doctor (two volunteers and a nurse); and there are community health committees in the four cantones that make up the municipio.

How can a doctor combine these community resources and his simple community technology into an effective rural health education program? Here is a start:

(1) He can work with his Cakchikel-speaking assistants so that they can make short recordings to be used by those people visiting the clinic. These might include what to expect from the doctor, prevention information on "worms," etc. A collection of tapes on additional topics (as well as other audio-visual materials) can be built over time by new waves of rural doctors.

(2) Similar communication materials can be prepared in collaboration with the community health committee. These committees constitute an existing infrastructure which, with more expert health information input, can be a powerful force for prevention programs. The committees can lend machines and cassettes to individual households, or gather people together in small groups to listen to tapes. Inevitably discussion will follow. The doctor can lend authority (as well as expertise) to the system by making health information tapes for the health committee itself (some of whom will understand Spanish) and for the community.

²⁶ This pattern is not limited to rural areas such as this one in Guatemala. We recently observed a very similar situation among the Hispanic population within a two-mile radius of the Harvard University medical complex in Boston.

Patzun. In Patzun, there is a special nutrition program for malnourished children and their mothers. The children are brought to the Health Center in Patzun where they are fed regularly with foods readily available in the area. As part of the program, mothers have a class once a week in which they help with the meal preparations and learn how to provide more nutritious meals for their children. The assumption is that they will continue these practices in their communities when they leave the nutrition rehabilitation program.

The doctor can take leadership in the preparation of information for mothers to take home with them on audio cassettes. This information would supplement and reinforce the material conveyed in the weekly sessions.

An important added benefit of this technique is reaching people who do not participate in the weekly classes. This is likely to happen because of group listening that often takes place spontaneously when a cassette machine is taken to an individual's home. It would also be possible to plan a system whereby mothers would lend the cassette machine and tape to other households. One important consequence of this system is the building of a sympathetic climate, both in the person's community and in her own home, for the kinds of practices promoted in the Health Center.

In addition to nutrition information, material related to health, sanitation, preventive medicine, etc. can be integrated into the recordings.

Thus systems are launched to stimulate the young doctor and his rural service associates from other sectors to see how communication technology can extend their reach and expand both the quality and quantity of their contacts with rural people.

A second setting. The PROSA context is not too far different from multi-sectoral community development programs which operate from a reasonably well organized resource and training base (e.g. BRAC and Comilla in Bangladesh). But what of the doctor doing rural service in more isolated areas of Colombia, Indonesia, or Zaire? In this situation, there is less structured interaction with other rural development specialists, the doctor tends to work in greater professional isolation, and he probably experiences much greater frustration. This is a situation faced by a very substantial proportion of doctors in rural service throughout the world. But even here, a doctor can build a health education program if his parent health service provides him with model scripts, pre-recorded materials and other resources which he can adapt to local conditions without cutting substantially into his other commitments. The project in Guatemala thus will include a remote rural area outside of PROSA to experiment with this type of system.

In summary, the expected outcome of this doctor-centered health education project is to develop model systems which are flexible enough to allow for adaptation to a wide range of conditions around the world, which are simple and have low enough cost/effective and cost/benefit ratios to be manageable within rural health program budgets (thus, making them independent of external assistance), and above all, systems which will attract physician endorsement and participation -- at the policy and decision-making levels, and out in the countryside.

Challenges for the primary health establishment:

The health education programs outlined in this paper are relatively simple. Their potential is substantial. Trying out such projects is relatively easy. Implementing health education programs on a continuing basis is much more difficult. Back-up support for each of the systems discussed is extremely

important unless they are going to be allowed to wither and die and then be checked off as another health or nutrition education failure. There is evidence that prevention pays off, and that communication and education are key ingredients to prevention programs.²⁷ Forceful and innovative officials in the health establishment from Afghanistan to Guatemala need to include people in their health care planning, and programming who can give a substantial core of their time to examining the communication and education aspects of health. It may be that the poor or ambiguous results which have come from health education in the past are due to it being a part-time low priority job given to a health person with too many other things to do.²⁸ Or thinking of health education as primarily an audio-visual activity.

Among the possibilities for changing the situation are these:

(1) Create a small unit of communication specialists in public health ministries, hospitals, and rural development projects who can work with doctors and other health people to use appropriate media and systems for getting the most value out of the health effort. Leadership for this should come from the upper levels of government. The comment of Dr. Everold Hosein, speaking at a Caribbean Food and Nutrition Institute meeting on Nutrition and the Mass

²⁷ In Colombia, the Candelaria project demonstrated that by using "better preventive methods and increasing awareness of the population regarding early treatment, the frequency, severity and duration of diarrheal and preventable diseases has diminished to a level where even with an 'inadequate diet,' the whole population is better nourished." Alberto Pradilla, et al., Candelaria, paper prepared for the International Conference on Non-Formal Education and the Rural Poor, Michigan State University, East Lansing, 1976.

²⁸ Cf: "Nutrition education to date has been treated primarily as a nutrition problem, not an education or communication problem. Most of the practitioners have been professional nutritionists or home economists, not professional communicators." Alan Berg, *The Nutrition Factor*, The Brookings Institution, Washington, DC, 1973. p. 88.

Media, suggests why:

When there is the political will to create such communication units within governments, then we can hope for the kind of behavioral changes we expect of food and nutrition workers in government. Until such time as we have a strong political commitment to the systematic use of communication, lower echelon staff such as health educators and food and nutrition workers will always be frustrated in their attempts to implement innovative communication education strategies.²⁹

Health education records:

And finally, if health education is to mean anything, attention must be given to carrying it out in such a way that those "administering" it know something about what has been consumed earlier. In health and medical practice, efforts are made to keep track of medicines or inoculations given, to allergies, to number of births, and to other aspects of a person's health history. Troublesome as keeping records may be, it only seems appropriate that we should begin, even in a simplified way, to systematically chart where we have been and where we are going in health education for the people in our primary health care programs.

²⁹"Mobilizing Media for Development: A Question of Will," Development Communication Report, No. 18 (April 1977), pp. 1 ff.